
Mill'd Lead Sheathing
FOR
SHIPS againſt the WORM,

Plainly Proved to be

BETTER than the BEST, and above *Cent. per Cent.* CHEAPER than the Ordinarieſt WOOD-SHEATHING can be; beſides divers other Advantages to the Publick.

The Particulars are more at large contained in the BOOK under-mentioned, referred to in the Margent.

It is better for these Reasons amongst many others

I. IT lies upon the * Plank ſo thin and ſmooth, that it can be no hindrance to the Ships ſailing, whereas the great thickneſs and roughneſs of a Wood ſheathing muſt obſtruct it. * *Vide* p. 38. 41.

II. It ſtiffens a Ship ſo that ſhe will carry more Sail, which will alſo accelerate her motion.

III. † It preſerves the Plank cool, ſmooth, and ſound, and the Oakam longer in the Seams: Whereas it is well known that when one Plank is doubled or clapp'd upon another, the undermoſt, being kept cloſe and hot, will become doted, which in a Wood-ſheathing muſt alſo rot the Oakam in the Seams, the ſooner. † P. 78.

IV. The great Nails in a Wood-ſheathing muſt be very deſtructive to the Plank; for when they ſtrip that Sheathing, they are fain to ſpyle up the Nail-holes with Pegs of Wood, whereas the ſmall Nails of a Lead-ſheathing does the Plank no harm.

V. * It is owned not to foul ſo much as a Wood-ſheathing; and when foul, eaſier cleaned. * P. 38.41,76, 80.

VI. Laſtly, The Lead-ſheathing being Metal, which the Worm cannot enter, it muſt be a certain ſecurity againſt it.

That it is above Cent. per Cent. Cheaper, *plainly appears as follows.*

SUppoſe that an ordinary Streights-ſheathing will coſt + 10 *d.* a Foot ſquare (a good *Eaſt-India* Sheathing near twice ~~three times~~ as much) and that ſuch a Sheathing laſts not above a Voyage or two; but, for more abundant proof, let it be granted that one ſuch Sheathing would laſt ſeven Years, and that the Charge of Graving upon that Sheathing (ſuppoſe for a Ship of 600 Tun, which would meaſure 5400 Foot ſquare) would coſt but 45 *l.* a-year, (which will probably be above 55 *l.*) this in ſeven Years, with the Sheathing at 10 *d.* a-foot, would coſt 540 *l.*

+ Suppose but 5 a foot, Lead-Sheathing would still be above 50 p Cent cheaper and better for preservation of the Hull and benefit of Sailing besides certain security against the Worme

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Suppoſe

2. Suppoſe alſo that a *Mill'd Lead* Sheathing ſhould be ſtripp'd at ſeven years end, † P. 27. † which for any defect in the Sheathing it ſelf (as Experience hath ſhewn) may laſt twice as long, if the Ship's Caulking, driving of her Bolts, or other Repairs, don't require it: And that ſuch a Sheathing for the ſame Ship would coſt 15 *d.* a foot, let there be deducted but $\frac{1}{4}$ for the Old Sheathing when ſtripp'd; which, being Metal, muſt yield more than that to melt down again, this Lead-ſheathing would ſtand the Owner but in 253 *l.* 2 *s.* 6 *d.* which is *Cent. per Cent.* ſaved, and 33 *l.* 15 *s.* to ſpare, probably more than it will require to repair accidental rubbs all the time; and when any ſuch thing happens, a ſmall quantity of the Lead and Nails, being reſerved on board, any one may mend as Opportunity offers.

3. P. 41. 76, 77. There is nothing more required, over or under this Sheathing, but to have the Plank well brimm'd, and the Seams well caulked, at firſt bringing on, and ſome long handled Briſtle-bruſhes provided on board to clean it once in two or three Months, as occaſion offers. Tallowing, that has been ſometimes uſed, was never propoſed by the Inventors, they conceiving the *Lead-ſheathing* would keep longer clean without it.

Object. If it be objected that this Sheathing coſts $\frac{1}{5}$ more than the other at firſt doing, *Anſw.* tho' if it did, 'tis ſufficiently repaid in the ſeven years time; but deducting only 55 *l.* for the Old Sheathing, allowing ſeven Years rebate for its preſent value, and it will appear not 4 *per Cent.* more than that at firſt charge with once graving.

A ſhort Account of the Beginning and Progreſs of the Mill'd-Lead *Sheathing.*

THis Invention was begun upon an Act of Parliament, by the countenance and encouragement of King *Charles* II. who very well underſtood Shipping, and * promiſed himſelf great Matters from it, and had not been deceived if it had met with due encouragement for all the Services it was qualified; particularly for † lyning of Bread-rooms, where, after it had been ſome time uſed (inſtead of Plates of Laten or Tin, which coſt more, and, being made of Iron ſoon ruſted and decay'd) it was laid aſide again, upon pretence that there was a dampneſs and moiſture diſcovered in the *Lead* it ſelf, which they found did corrupt and ſpoil the Biſquet; although 'tis well known, eſpecially to Merchants, that nothing preſerves any Proviſions or Goods, they put therein for their long Voyages, ſweeter and better than Lead ~~inſtead of.~~ The Earl of *Carliſle*, when he went Governor of *Jamaica*, carried over with him ſeveral Deal-boxes lyned with *Mill'd-Lead*, wherein he put Corn, Meal, Gunpowder, *&c.* intending them for Water-Ciſterns afterwards, from whom and Sir *Henry Morgan* Letters came to Sir *Philip Howard*, that the Corn and Meal was preſerved ſweet in thoſe Boxes, when the reſt of the ſame ſort that was in Cask was muſty, and the Gunpowder dry, and a ſixth part of more force upon Trial than the ſame ſort in Barrels: And alſo for Scuppers, wherein, notwithſtanding the † Evidence upon the Trials made in 1678. by that Board's Order the ſame was diſcontinued till the preſent Navy-board being ſatisfied upon * new Trials by them ordered in 1691. were pleaſed to reſtore it to uſe again, at Rates above 90 *per Cent.* leſs charge to the King, than the former Scuppers for the ſame Service had coſt him, though they might reaſonably have allowed the Propoſer ſomething more for his Encouragement, and ſaved the King enough by his Propoſition.

* P. 22. *Of the Letter.*
† Vide *Purſers Certificates.* P. 83.
† P. 114.
* P. 116.

The firſt Ship was ſheathed by his Majeſty's Direction, *March* 10 1670. and ſoon after many more: But it quickly found great oppoſition, and continual Complaints and Objections, raiſed by the Artifice of Perſons intereſted to oppoſe it; *viz.* that it would rub off by Cables, Hawſers, lying on ground, *&c.* ſo that the Navy-Board deferred entring into any formal Contract for it, till they had taken time enough to be fully ſatisfied therein; and after five Years Trial upon ten Ships, which had been ſheathed within that time, they then (as in in the Preamble of their Contract) upon † ſufficient Proof and Experience, entred into a Contract with the Parties concerned for the whole time of their Act of Parliament.

† P. 8. 73, 74, 75, 76.

Afterwards about half a ſcore Ships more were ſheathed in two or three Years time, when a new Complaint was raiſed from abroad by Letters from * ſome Captains and Commanders of *Lead-ſheathed* Ships, that there was ſome venemous Quality diſcovered in the *Lead ſheathing*, that did in a very extraordinary manner eat and corrode the Bolts and *Rudder-Irons*, which took ſuch impreſſion in that Navy-Board, notwithſtanding all Reaſons offered to the contrary, that they († ſome time afterwards) reported the thing to the then Lords of the Admiralty, as true, and adviſed the ſtripping off the *Lead-ſheathing* as ſoon as the Ships came home, to which Report the *Mill'd-Lead* Company (when they heard of it, having obtained a Copy) put in their Anſwer, both which were by my Lord *Nottingham*, one of thoſe Commiſſioners, and alſo a Privy-Counſellor, laid before the King and Council, and by them upon Hearing (the Particulars being many) referred back again to the Lords of the Admiralty to examine and report their Opinions; but that Admiralty Commiſſion being determined before any Report could be obtained, this Sheathing has been diſcontinued in the Navy ever ſince, † upon no other ground but barely upon its ſuppoſed extraordinary eating and corroding the *Rudder-Irons*, all other Complaints being cleared as aboveſaid, and nothing more now objected in their ſaid Report, which ſhewed their full ſatisfaction in all other Matters, but what related to the Bolts and *Rudder-Irons* only.

* P. 11. 12, 13, 14, 15.

† Octob. 28. 1682.

† P. 40. 41.

> *Obſ.* It may be obſerved upon this laſt Paragraph, without Reflection upon the Commanders, that the Shipwrights here having furniſhed their Brethren the Carpenters, on Board thoſe Ships, with Inſtructions from the ruſty diſcolouring of the Lead, mixing with the Filth about the Braces of the *Rudder* and Bolt-heads (by the Salt Waters gleeting from the Iron-work beneath * being not parcelled as it ought to have been) it may be thought no great difficulty (eſpecially if the *Rudder-Irons* happen'd to be much eaten) for theſe Carpenters (whoſe proper Buſineſs this is) to impoſe upon the Captain by poſitive Aſſertions, that they never knew *Rudder-Irons* ſo much eaten in ſo ſhort a time, and might name ſome upon other Ships that were much better; and perſwade him (from this unuſual Colour about the Iron-work) that it muſt be ſome poiſonous or corroding Quality in the *Lead-ſheathing* that has thus extraordinarily eaten his *Rudder-Irons*; which ſeeming plauſible to him, at length he believes, and writes ſo to the Navy-Board, and afterwards, perhaps, thinks himſelf bound in Honour to maintain it, what Reaſons ſoever are offered to the contrary.

* P. 25. 26.

The whole Proceedings about this Lead-ſheathing having been ſometime ſince printed, and the Books ſold at certain Bookſellers (*viz.* Mr. *Henſman*'s in *Weſtminſter-Hall*, the *Crown* and *Harrow* in *Fleetſtreet*, the *Harp* in St. *Paul*'s Church-yard, and at the *Leg* and *Star* in *Cornhill*) ſome eminent Merchants, Owners of Ships, have taken the ſame into their Conſideration; and being well ſatisfy'd of the Excellency, and preference of this *Lead-ſheathing* in reſpect of the other, and of the weak and groundleſs Suggeſtions of its corroding and eating the *Rudder-Irons*, both from Reaſon and Experience (it being evident that the duration of *Rudder-Irons* have always been very different and unconſtant upon all Ships, whether ſheathed with Lead, Wood, or not ſheathed at all, according to the Smith's better or worſe mixing, welding, and working of his Iron, * ſome of thoſe other having laſted as ſhort a time as any upon the Lead-ſheathed Ships, as well as ſome upon theſe, as long as any upon the other, as can be proved, if neceſſary; which Effects muſt have been as conſtant and uniform as their Cauſes, if the ſheathing either way were any wiſe concerned therein) have applied this *Lead-ſheathing* to

* Vide *the Account of* Rudder-Irons *from* Deptford, *and* p. 12. 14, 15, 30, 32. *of this Book.*

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four Ships within this twelve-month; one of them a Ship of above 600 Tun, called the † *Antelope*, employed the laſt Summer in his Majeſty's Service, which being returned with her Sheathing much to the Owners ſatisfaction, they have ſince ſent her a Voyage to the *Eaſt-Indies*.

† *Vide the ſingle Sheet at the end of the Book.*

Notwithſtanding all which, there are ſome Perſons that are ſtill prejudiced by the old Complaints, and others who deal in the Materials of the *VVood-ſheathing* and Graving, eſpecially the Shipwrights (whoſe Intereſt it is, and therefore the leſs to be blamed) that decry this *Lead-ſheathing*; but it is to be hoped there are ſome Perſons in Power (now that the Scene of the Royal Navy lies in the way of the Worm, and is likely longer ſo to do) may be found of that Publick Spirit, that will give themſelves the trouble to be duly informed in this Matter; and if they find it deſerves it, to promote its Reſtauration to the Navy, that the Publick may have the benefit thereof as well as private Perſons, which may accrew to them in many other reſpects, beſides the direct uſe of it in ſheathing Ships: For that the * moſt eſſential part of what's imploy'd in the Wood-ſheathing is of foreign growth, often in times of War (when moſt wanted) not to be had, or at very dear rates, whereas the *Lead* being in our own Bowels can never be wanting: And alſo, for that this *Lead-ſheathing* will more exhauſt our *Lead-Mines*, and increaſe the Manufacture of *Lead*; upon which Conſiderations the Parliaments of *England* have ever laid great weight, in all their deliberations about Trade; and particularly in the Act relating to this very Invention.

* P. 37.

All ſuch as have occaſion for this *Lead-ſheathing*, or for any other ſort of *Mill'd Lead*, from one pound to the Foot-ſquare to twenty or more of the uſual breadth of three Foot and an half, and twice as long as any Plumber pretends to caſt, if need requires, for Covering Houſes, and all Works wherein *Sheet-Lead* is uſed, better, and above 20 *per Cent.* Cheaper than theirs, as is proved in the Book above-mentioned, *p.* 114. and elſewhere, Mr. *Hale* who lives at the *Mill'd-Lead* Sign in *Aurange-ſtreeet* by *Red Lyon* Square, is ready to undertake the ſaid Sheathing, or any other Work about Churches, Houſes, *&c.* having able Plumbers and ſufficient Workmen to perform the ſame; and ſells his *Solder* for ſix-pence a-pound, which the Plumbers, by Combination, have hitherto kept up at 9 *d.*

F I N I S.

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